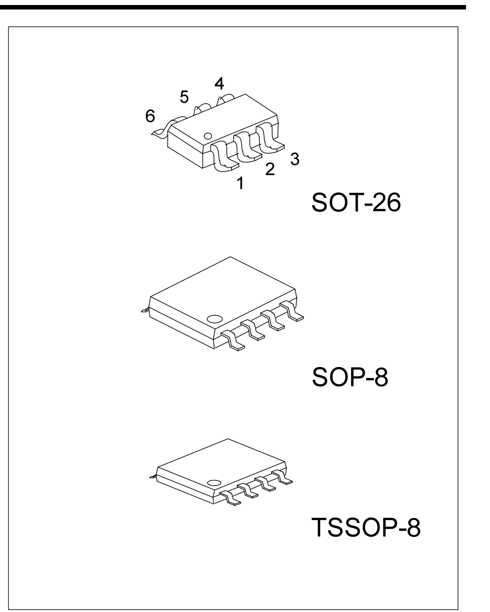



**UNISONIC TECHNOLOGIES CO., LTD**

# UT8205A

***Power MOSFET***

## N-CHANNEL ENHANCEMENT MODE



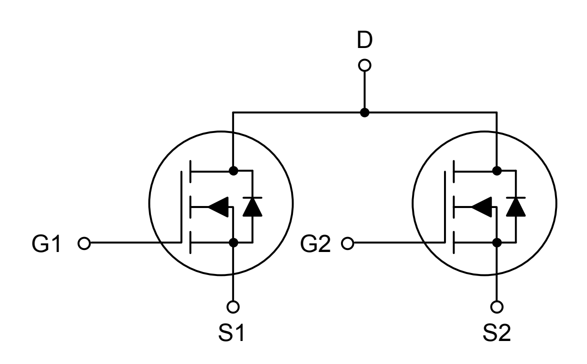

## ■ DESCRIPTION

The **UT8205A** uses advanced technology to provide fast switching, low on-resistance and cost-effectiveness. This device is suitable for all commercial-industrial surface mount applications.

## ■ FEATURES

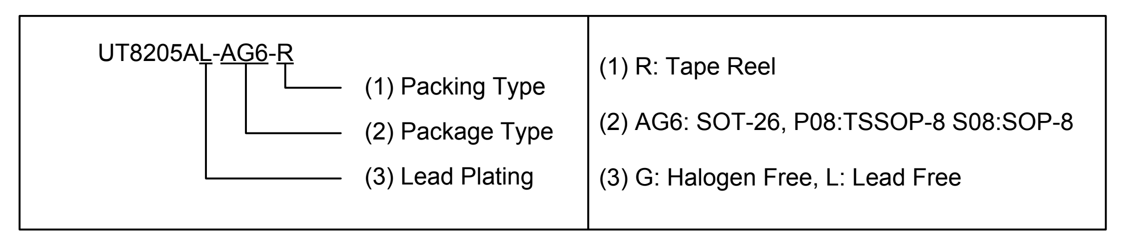
* $R_{DS(ON)}$ ≤28mΩ @$V_{GS}$ = 4.5 V
* Ultra low gate charge ( typical 23 nC )
* Low reverse transfer Capacitance ( $C_{RSS}$ = typical 150 pF )
* Fast switching capability
* Avalanche energy Specified
* Improved dv/dt capability, high ruggedness

## ■ SYMBOL

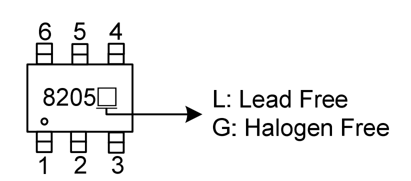



## ■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | | | | | | Packing |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead Free | Halogen-Free | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| UT8205AL-AG6-R | UT8205AG-AG6-R | SOT-26 | S1 | D | S2 | G2 | D | G1 | - | - | Tape Reel |
| UT8205AL-S08-R | UT8205AG-S08-R | SOP-8 | D | S1 | S1 | G1 | G2 | S2 | S2 | D2 | Tape Reel |
| UT8205AL-P08-R | UT8205AG-P08-R | TSSOP-8 | D | S1 | S1 | G1 | G2 | S2 | S2 | D2 | Tape Reel |




## ■ MARKING FOR SOT-26



## ■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | 20 | V |
| Gate-Source Voltage | | $V_{GSS}$ | ±12 | V |
| Drain Current (Note 2) | Continuous | $I_D$ | 6 | A |
| | Pulsed | $I_{DM}$ | 20 | A |
| Power Dissipation (Ta=25°C) (Note 3) | SOT-26 | $P_D$ | 1.14 | W |
| | SOP-8/TSSOP-8 | | 1 | W |
| Junction Temperature | | $T_J$ | +150 | °C |
| Storage Temperature | | $T_{STG}$ | -55 ~ +150 | °C |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Pulse Test : Pulse width≤300μs, Duty cycle≤2%
3. Pulse width limited by $T_{J(MAX)}$

## ■ THERMAL DATA

| PARAMETER | | SYMBOL | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Junction to Ambient (Note) | SOT-26 | $\theta_{JA}$ | | | 110 | °C/W |
| | SOP-8 | | | | 78 | °C/W |
| | TSSOP-8 | | | | 125 | °C/W |

Note: Pulse Test : Pulse width≤300μs, Duty cycle≤2%

## ■ ELECTRICAL CHARACTERISTICS ($T_J$ =25°C, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$=0V, $I_D$=250μA | 20 | | | V |
| Breakdown Voltage Temperature Coefficient | $\Delta BV_{DSS}/\Delta T_J$ | $I_D$=1mA, Reference to 25°C | | 0.03 | | V/°C |
| Drain-Source Leakage Current | $I_{DSS}$ | $V_{DS}$=20V, $V_{GS}$=0V, | | | 1 | μA |
| Gate-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±8V | | | ±100 | nA |
| **ON CHARACTERISTICS** | | | | | | |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{DS}$=$V_{GS}$, $I_D$=250μA | 0.5 | | 1.5 | V |
| Drain-Source On-State Resistance (Note) | $R_{DS(ON)}$ | $V_{GS}$=4.5V, $I_D$=6.0A | | | 28 | mΩ |
| | | $V_{GS}$=2.5V, $I_D$=5.2A | | | 38 | mΩ |
| **DYNAMIC PARAMETERS** | | | | | | |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$=20V, $V_{GS}$=0V, f=1.0MHz | | 1035 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 320 | | pF |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 150 | | pF |
| **SWITCHING PARAMETERS** | | | | | | |
| Turn-ON Delay Time (Note) | $t_{D(ON)}$ | $V_{GS}$=5V, $V_{DS}$=10V, $R_D$=10Ω, $R_G$=6Ω, $I_D$=1A | | 30 | | ns |
| Turn-ON Rise Time | $t_R$ | | | 70 | | ns |
| Turn-OFF Delay Time | $t_{D(OFF)}$ | | | 40 | | ns |
| Turn-OFF Fall-Time | $t_F$ | | | 65 | | ns |
| Total Gate Charge(Note) | $Q_G$ | $V_{DS}$ =20V, $V_{GS}$ =5V, $I_D$ =6.0A | | 23 | | nC |
| Gate Source Charge | $Q_{GS}$ | | | 4.5 | | nC |
| Gate Drain Charge | $Q_{GD}$ | | | 7 | | nC |
| **SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS** | | | | | | |
| Drain-Source Diode Forward Voltage (Note) | $V_{SD}$ | $I_S$=1.7A, $V_{GS}$=0V | | | 1.2 | V |
| Diode Continuous Forward Current | $I_S$ | $V_D$=$V_G$, $V_S$=1.3V | | | 1.54 | A |

Note: Surface mounted on 1 $in^2$ copper pad of FR4 board; 208°C/W when mounted on min.

■ TYPICAL CHARACTERISTICS

